STUDY #3 ASSESS RELATIONSHIP OF PROJECT OPERATIONS AND RECREATION

November 21, 2001

1.0 INTRODUCTION/BACKGROUND

Operation of the Federal Energy Regulatory Commission (FERC) project affects opportunities for a variety of Lake Oroville area outdoor recreation activities. The project directly affects water-related activities such as swimming, boating, and fishing, and can indirectly affect other activities such as picnicking, camping, or trail use. This study will examine the effects of the project, such as changes in water temperature, reservoir pool levels, and flow rates/water release times on a variety of recreational uses within the Study Area.

According to the Initial Information Package (IIP), there are specific recreation facilities that have limited usefulness during times of low water. Low runoff into the reservoir (e.g., mid-1980s through early 1990s), combined with project operations, can result in low water levels. Originally, boat ramps at the project were not designed to work under such conditions. It was for this reason that ramps at Bidwell Canyon and Lime Saddle were extended and the Spillway ramp was modified to facilitate launches at low water.

For the water year 1999-2000, the level of the lake was 853 feet above sea level (asl) at the beginning of the recreation season in April. At the end of the recreation season in September, the level of the lake was 786 feet asl (a 67 foot difference). This difference prevents the use of some recreational facilities during low water periods.

2.0 STUDY OBJECTIVE

The main objective of this study is to determine the effects of current conditions and any proposed changes to project operations on recreational use and recreational experiences of visitors during various activities.

3.0 RELATIONSHIP TO RELICENSING /NEED FOR THE STUDY

This study is needed to determine impacts of project operations on recreational uses, and on the quality of visitors' experiences during activities that occur within the Study Area. Impacts to recreational uses and experiences can occur as a result of changes in reservoir pool levels, reservoir water temperature, and changes in flow rates downstream of the Oroville Reservoir. Information gathered for this study will be used to recommend measures or facilities that may create, preserve, or enhance recreational opportunities within the Study Area and in its vicinity (Subpart F, Section 4.51 of 18 CFR).

The purpose and need of this study is to address Issue Statement R3—effects of facilities operations on recreation and socioeconomic opportunities. Specifically, this study will address Issues RE 44, 50, 51, 63, 108 and 109.

4.0 STUDY AREA

The Study Area includes Lake Oroville, the lands and waters within and adjacent to (1/4 mile) the FERC project boundary, and adjacent lands, facilities and areas with a clear project nexus.

Campgrounds

Bidwell Canyon Campground Floating Campsites

Bloomer Cove Boat-In Campsite (BIC)
Bloomer Knoll BIC
Bloomer Point BIC
Bloomer Group BIC
Craig Saddle BIC
Foreman Creek BIC
Goat Ranch BIC
Lime Saddle Campground
Lime Saddle Group Campground
Loafer Creek Campground
Loafer Creek Group Campground
Loafer Creek Horse Campground
Oroville Wildlife Area (Larkin Road Camping Area)
Thermalito North Forebay RV "en route" Campground

Day Use Areas (DUAs)

Lake Oroville Visitor Center
Lime Saddle DUA
Bidwell Canyon DUA
Loafer Creek DUA
Oroville Dam Overlook Area
Spillway DUA
Diversion Dam
Saddle Dam DUA
Thermalito North Forebay DUA
Thermalito South Forebay DUA
Thermalito Afterbay DUA (off Highway 162)
Thermalito Afterbay Wilbur Road DUA
Thermalito Afterbay Larkin Road DUA

Boat Launch Areas (BLAs)

Lime Saddle BLA
Loafer Creek BLA
Bidwell Canyon BLA
Enterprise Boat Launch Ramp (BLR)
Nelson Bar Car-Top BLR
Foreman Creek Car-Top BLR
Dark Canyon Car-Top BLR
Stringtown Car-Top BLR
Vinton Gulch Car-Top BLR
Thermalito North Forebay
Thermalito South Forebay
Thermalito Afterbay

Other Recreational Facilities with Project Nexus

Floating Restrooms
Brad P. Freeman Bicycle Trail
Dan Beebe Equestrian Trail
Aquatic Center
Fish Hatchery
Clay Pit State Vehicular Recreation Area (SVRA)
Model Aircraft Flying Area

5.0 GENERAL APPROACH

Task 1—Research Project Operations Issues

Researchers will solicit input from the California Department of Water Resources (DWR), California Department of Parks and Recreation (DPR), California Department of Fish and Game (DFG), and the California Department of Boating and Waterways (DBW). The research team will also use information from other studies such as Study #7—Reservoir Boating Survey; Study #9—Existing Recreation Use; Study #13—Recreation Surveys, and information from the Engineering and Operations Work Group. The studies and information will be used to understand the extent of recreation facilities and water bodies affected by low pool levels and impacting conditions resulting from various project operations.

The research team will request the following information regarding Oroville Reservoir pool elevations from the Engineering and Operations Work Group:

- Annual highest elevation;
- Annual high month;
- End of May average over 70 year period of record;
- End of June average over 70 year period of record;
- End of July average over 70 year period of record;
- End of August average over 70 year period of record;
- Minimum and maximum (over 70 years) and standard deviations;
- Flow rates for the upper and lower reaches of the Feather River; and
- Water temperature data.

Samples of flow and temperature data are presented in Attachments B, C, and D.

Researchers will also review existing plans, reports, and studies, and talk with local "regular" users to ascertain how and where facilities are affected by low pool levels and other project operations. Once identified, information about the specific site(s) can be gathered and developed to understand project operations issues.

Task 2—Assess the Effects of Project Operations on Recreation Use

This task will have several subtasks to assess specific facilities potentially affected by low pool levels. Attendance data dating back to 1990 will be reviewed to assess the relationship between low pool levels and recreational uses. The purpose of this is to develop a brief, historical perspective about how project operations may affect current recreational uses and those in the next license period.

Task 2A—Assess the Effects of Low Pool Levels on BLR Access

Researchers will assess the effects of low pool levels on boat launch ramp access by combining data from field observations and Study #9. Researchers will note boat launch ramp use limitations as pool levels change. Researchers will also note use trends as pool levels change. The effect of seasonal low pool level on Bidwell Canyon, Spillway, Lime Saddle, and Enterprise Boat Launch Ramps will be assessed.

Task 2B—Assess the Effects of Low Pool Levels on Car-Top BLR Access

Researchers will assess the effects of low pool levels on car-top boat launch ramp access by combining data from field observations and Study #9. Researchers will note car-top boat launch ramp access limitation as pool levels change. Researchers will also note use trends as pool levels change. The effect of seasonal low pool levels on Nelson Bar, Foreman Creek, Dark Canyon, Stringtown, and Vinton Gulch Car-Top Boat Launch Ramps will be assessed.

Task 2C—Assess the Effects of Low Pool Levels on BIC Access

Researchers will assess the effects of low pool levels on BIC access by combining data from field observations and Study #9. Researchers will note BIC access as pool levels change. Researchers will also note use trends as pool levels change. The effect of seasonal low pool levels on Bloomer Cove, Bloomer Knoll, Bloomer Point, Bloomer Group, Craig Saddle, Foreman Creek, and Goat Ranch BICs will be assessed.

Task 2D—Assess Effects of Low-Pool Levels on Swimming Access
The research team will review pool-level data and work with the Engineering and Operations and Environmental Work Groups to examine ways to facilitate an improvement in swimming experiences. Initial investigations and discussions with users (e.g. Sonny Brandt) and managers (DWR and DPR staff) suggest there are currently limited swimming areas during low-pool level. Possible solutions will be investigated and documented for Lake Oroville, the Low Flow section of the Feather River below Oroville Dam, Thermalito Afterbay, and Thermalito North and South Forebays

Task 2D—Assess Effects of Water Temperature on Swimming
The research team will review water temperature data and work with the Engineering and Operations and Environmental Work Groups to examine ways to facilitate an improvement in swimming experiences. Possible solutions will be investigated and documented for Lake Oroville, the Low Flow section of the Feather River below Oroville Dam, Thermalito Afterbay, and Thermalito North Forebay. Potential conflicts with fisheries will be investigated as part of this Task. For example, DFG has specific requirements for Study Area fish species during certain times of the year. If improvements in swimming can be made by adjusting the temperature regimes without negatively impacting the fishery, a solution may be realized.

Task 2E—Assess Flow Rates and Water Temperature on Fishing
Researchers will investigate effects of flows and water temperature on fishing suitability. The research team will work closely with the Environmental Work Group to understand the effects of flow rates on sportfish distribution and abundance.

Task 3—Assess the Effects of Project Operations on Recreation Experiences
This task will assess visitors' attitudes and opinions about the effects of project operations on recreational experiences. Visitors' attitudes and opinions will be summarized regarding reservoir conditions at low pool levels, utility of launching and docking facilities at low pool levels, and potential management and facility improvements. Researchers will solicit input from boaters and other visitors using boat launch ramps, car-top boat launches, and BICs. Data for this task will be collected as part of Study #13—Recreation Surveys.

Task 4—Assess Future Operational Scenarios
This task will assess how changes in pool levels, water temperature, different release patterns from Lake Oroville, different inflow patterns to Lake Oroville, and other operational factors might affect recreational uses of the Study Area. Extrapolations can be made about the effects of specific project operation scenarios on recreation. This will be accomplished by combining data gathered in Study #13 with information about planned projects solicited from DWR, DPR, and DFG agency personnel.

It will also be accomplished by using a reservoir pool level and recreation attendance model developed for the Central Valley Project Improvement Act (CVPIA) Programmatic EIS/EIR (Attachment A).

6.0 RESULTS AND PRODUCTS/DELIVERABLES

Results

Results will be used to develop protection, mitigation, and enhancement measures (PMEs) for facilities and/or areas negatively affected by project operations.

Products/Deliverables

The following products will be developed for this study:

- Interim Report
- Draft Final Report

The Interim Report will be based on existing operations, and the Draft Final Report will include various operational scenarios. Both reports will contain an executive summary; an introduction; objectives; methods; results; and a discussion.

7.0 COORDINATION AND IMPLEMENTATION STRATEGY

Coordination with Other Resource Areas/Studies

This study will require coordination with Study #7—Reservoir Boating Survey; Study #9—Existing Recreation Use; Study #13—Recreation Surveys; and Study #16—Whitewater Boating. It will also require coordination with studies that will be conducted by the Engineering and Operations Work Group.

Issues, Concerns, Comments Tracking, and/or Regulatory Compliance Requirements

The results of the study will address Issue Statement R3—Effects of facilities operations on recreation and socioeconomic opportunities, and the following specific Issues: RE 44, 50, 51, 63, 108 and 109.

8.0 STUDY SCHEDULE

Data collection: September through November 2002.
Report writing and data analysis: December through February 2003.
Interim Report due: March 2003.
Draft Final Report due: September 2003.

ATTACHMENT A. EXISTING INFORMATION

1. Recreation pool level attendance model from the Programmatic EIS/EIR for the Central Valley Project Improvement Act.

2. Initial information package facilities operations and recreation resources data.

Preliminary Sample Not Checked for Accuracy

ATTACHMENT B. EXAMPLE 1 OF FLOW DATA TO BE REPORTED

Table X. Feather River Minimum Flow Requirements (1)

Percent of Normal (2) Runoff (%)	Oct – Feb (cfs)	Mar (cfs)	Apr – Sep (cfs)
> 55	1,700	1,700	1,000
< 55	1,200	1,000	1,000

(1) If Oroville surface elevation is greater than 733 feet.
(2) Normal is defined as the mean (1911 – 1960) April through July unimpaired runoff near Oroville of 1,942,000 acre-feet.

ATTACHMENT C. EXAMPLE OF WATER TEMPERATURE DATA TO BE REPORTED

Table Y. Water Temperature Objectives

Period	Temperature (F°)	(C°)
April 1-May 15	51°	10.6°
May 16-May 31	55°	12.8°
June 1-June 15	56°	13.3°
June 16-August 15	60°	15.6°
August 16-August 31	58°	14.4°
September 1-September 30	52°	11.1°
October 1-November 30	51°	10.6°
December 1-March 31	55°	12.8°

Preliminary Sample Not Checked for Accuracy

ATTACHMENT D. EXAMPLE 2 OF FLOW DATA TO BE REPORTED

Figure Z. Monthly Oroville Inflow